

the alcohols, &c., do not produce coagulation, and the phenomenon seems to be initiated solely by the presence of the positive ion of an electrolyte. The negative ion apparently is quite without influence on the rate of coagulation; equivalent quantities, for instance, of sodium chloride, sodium nitrate, and sodium sulphate cause coagulation to occur at exactly the same rate. The nature of the positive ion, on the other hand, exercises great influence on coagulation; in the case of the alkali metals the rate depends on the atomic weight, there being a regular sequence in the order lithium, sodium, potassium, rubidium, caesium, the metal of greatest atomic weight bringing about coagulation most rapidly. Traces of acids and of acid salts, however, inhibit coagulation, an abnormal behaviour of the hydrogen ion being thus indicated, whilst alkalis always increase the rate of formation of a coagulum.

MESSRS. BURGOYNE, BURBIDGES AND CO. have recently sent us a new edition of their price list of pure chemicals and reagents manufactured by them. Part ii. of the catalogue contains a list of chemical and physical apparatus for laboratory or lecture purposes.

WE have received the May issue of the *Stonyhurst Magazine*, an excellent example of an illustrated college magazine. The "science notes," which are entirely astronomical, are illustrated by drawings made at Stonyhurst Observatory of the great sun-spot of February. There is also a collection of notes on the bird-life of the college district.

THE Cambridge University Press has published the first supplement of the second volume of "The Fauna and Geography of the Maldives and Laccadive Archipelagoes, being the Account of the Work carried on and of the Collections made by an Expedition during the Years 1899 and 1900," which is being edited by Mr. J. Stanley Gardiner. An index is in course of preparation, and will be published shortly.

PROF. J. J. THOMSON'S work on "Electricity and Matter," containing six lectures delivered by the author at the University of Yale in 1903, has been translated into Italian by Prof. G. Faè, and published as one of the Hoepli manuals. In the opening paragraph of a short introduction to the work, Prof. Faè quotes the remark made by Sir Oliver Lodge in our columns that the volume is "Altogether a fascinating and most readable book for students of physics and chemistry."

WE have received from Messrs. Taylor, Taylor and Hobson, Ltd., of Leicester, a very neatly got up catalogue of their photographic lenses. These, as is well known, are of many varieties, and the particular features are that they are composed of three thin glasses, uncemented, and accurately adjusted to produce with full aperture sharp definition evenly throughout the plate. The principles of the action of a lens are clearly described and illustrated by Mr. William Taylor, and an interesting series of illustrations is given showing the manipulation of the glass in their works from the rough blocks to the finished lenses.

THE 1905 issue of the "Statesman's Year-book" has now been published by Messrs. Macmillan and Co., Ltd. The statistical and other information in the new issue has been brought up to the latest available date, in some cases to the end of 1904. Much alteration has been involved by the Anglo-French Convention of 1904 and by the administrative re-arrangement of French West African possessions. The space devoted to Germany as a whole, especially education, has been increased; Bulgarian statistics have been much extended; the Philippine Islands have been treated more fully; and numerous other sections have

been largely re-written and thoroughly revised. Two interesting tables are included, one showing the losses sustained by the Russian and Japanese forces in the present war, and the other showing the penetrative power of the projectiles used. As usual, the maps and diagrams are numerous, well executed, and of great value—among them may be mentioned one showing the new naval distribution scheme, and one illustrating the British meat imports from abroad. The "Statesman's Year-book" is likely long to retain the high place it has held for many years among books of reference.

THE annual report of the Board of Scientific Advice for India for the year 1903-4 has been received. With the exception of that part of the report relating to the work of the Survey of India, it is based upon the departmental reports for the year under consideration. The information included is arranged under the following headings:—trigonometrical survey, topographical survey, forest survey, cadastral and traverse survey, geographical surveys and reconnaissances, total outturn, geodetic, marine survey, astronomical work, meteorology, geology, zoological survey, veterinary science, botanical survey, applied botany, and chemistry. It is worthy of note that the report contains no list of names of the men of science constituting the Board of Scientific Advice, nor are there reports of any meetings of the Board. The portion of the report relating to the work of the Survey of India is based on the report of that department for 1902-3 published in 1904, and certain other items embodying information of later date than the period covered by any of the other reports. The publication as a whole may be described as a *résumé* of individual departmental reports; it contains scarcely anything in the way of recommendations for the future guidance of departmental work, and little that is to be identified as the special function of a Board of Scientific Advice.

OUR ASTRONOMICAL COLUMN.

ASTRONOMICAL OCCURRENCES IN MAY:—

- May 1. Vesta 6° S. of β Leonis.
 „ 2. 9h. 38m. Minimum of Algol (β Persei).
 „ 2. 6h. Epoch of Aquarid meteoric shower (Radiant 338°-2°).
 „ 3. 18h. Jupiter in conjunction with the Sun.
 „ 6. 5h. 28m. to 6h. 30m. Moon occults α Tauri (Aldebaran).
 „ 8. 8h. Mars in opposition to the Sun.
 „ 12. 8h. 46m. to 9h. 53m. Moon occults A Leonis (mag. 4.6).
 „ 15. Venus. Illuminated portion of disc = 0.100; of Mars = 0.997.
 „ 17. 10h. Mars in conjunction with Moon, Mars 5° 10' S.
 „ 20. 23h. Mercury at greatest W. elongation, 25° 26'.
 „ 22. 11h. 20m. Minimum of Algol (β Persei).
 „ 24. Saturn. Outer major axis of outer ring = 39" 50; minor axis of outer ring = 5" 88.
 „ 25. 13h. Saturn in conjunction with Moon, Saturn 1° 39' S.

ELEMENTS AND EPHEMERIS FOR COMET 1905 *a* (GIACOBINI).—A set of elements and an ephemeris (April 6-30) for comet 1905 *a* have been communicated, by General Bassot, of the Nizza Observatory, to No. 4010 of the *Astronomische Nachrichten*. These were computed from observations made at Nice on March 26, 28, and 30, and the elements agree closely with two other sets computed at Harvard and Paris respectively, and published in the same journal. The elements and an extract from the ephemeris are here given:—

Elements.

T = 1905 April 4^h 14^m (Paris M.T.)

$$\left. \begin{aligned} \infty &= 358^{\circ} 18' 0'' \\ \Omega &= 157^{\circ} 7' 1'' \\ i &= 40^{\circ} 24' 8'' \end{aligned} \right\} 1905^{\circ}$$

$$\log q = 0.04836$$

Ephemeris 12h. (M.T. Paris).					
1905	α	δ	log Δ	Bright- ness	
	h. m. s.	° ' "			
April 26 ...	8 9 33	+43 1'0	9.9079	...	0.70
27 ...	8 15 24	+43 38.8			
28 ...	8 21 17	+44 14.3			
29 ...	8 27 13	+44 47.3			
30 ...	8 33 11	+45 17.5	9.9247	...	0.61

Brightness at time of discovery = 1.0.

An observation by Dr. Palisa at Vienna on April 8 gave a correction of +2s. and +0.2.

CHANGES ON MARS.—A telegram from Mr. Lowell, published in No. 4010 of the *Astronomische Nachrichten*, announces that colour changes similar to those previously reported are again taking place in some of the Martian features. The Mare Erythræum, just above Syrtis, has again changed from a blue-green to a chocolate-brown colour. This change was first observed by Mr. Lampland on April 4, and the Martian season now corresponds to our February.

In a communication to No. 4, vol. xiii., of *Popular Astronomy*, Prof. W. H. Pickering observes that ice will probably begin to form at both poles of Mars during the present month, the north pole being turned towards the earth at an angle of 10° – 13° . This opposition is particularly favourable for observations of the green colour over a greater part of the planet's surface, as Mars will be more favourably situated than during the preceding or the following opposition. Its apparent diameter will be from $13''$ to $17''$, and the poles should appear either of a pure white, a light yellow, or a vivid green colour, the first named being due to hoar-frost or snow, the second to clouds, and the last named, in part at least, to vegetation.

PHOTOGRAPHY OF PLANETARY NEBULÆ.—In No. 356 of the *Observatory* Mr. W. S. Franks suggests that special attention should be paid to the photography of planetary nebulae by those observatories which possess long-focus cameras. Whilst using the late Dr. Roberts's 98-inch "Starfield" reflector, Mr. Franks attempted to photograph these interesting objects both with and without a secondary magnifier, but in the first case the images obtained were indistinguishable from those of the surrounding stars, whilst in the latter the definition was very unsatisfactory.

One point which is strongly in favour of anyone entering this field of research is the fact that the light emitted by these objects is of a highly actinic character necessitating only short exposures.

RADIAL VELOCITIES OF "STANDARD-VELOCITY STARS."—No. 3, vol. i., of the *Mitteilungen* of the Nicholas Observatory, Pulkowa, contains a number of results obtained by Prof. Belopolsky for the values of the radial velocities of the "standard-velocity" stars. Each of the values was obtained from the measurement of about fifteen iron lines on a single plate, and the date, time, and hour-angle is given in each case. The stars dealt with in the present publication are α Arietis, α Persei, ϵ Pegasi, and β Geminorum, and taking the mean of the several values given in each case the following respective velocities are obtained:— -12.30 km., -2.14 km., $+5.72$ km. (one plate) and $+4.21$ km.

MAGNITUDE EQUATION IN THE RIGHT ASCENSIONS OF THE EROS STARS.—In *Bulletin* No. 72 of the Lick Observatory Prof. R. H. Tucker discusses the magnitude equation which enters into the observations of the right ascensions of the Eros stars as observed at various stations engaged in the work. Comparing the equations in the first and second Eros lists, it is found that there is no marked similarity between the two sets observed at the same station; different instruments, and probably in some cases different observers, having been employed. At Lick the effect of magnitude has been measured by screen observations at three different epochs for the same observer and instrument. For clock stars the correction obtained was 0.007 second per magnitude, and, assuming it to vary with declination, this would give 0.010 second and 0.008 second per magnitude for the first and second lists respectively. Confirmation of this, in general, is found in the Königsberg results obtained with a clock-driven micrometer in which it is assumed that the magnitude equation is eliminated. Other tables given show the variation of the error with varying magnitudes.

NO. 1852, VOL. 71]

MEMOIRS ON MARINE BIOLOGY.

THE study of marine life by the sea-side is not only a delightful occupation in itself, but is now considered as an almost essential part of the training of every young biologist. It is also one of the most fruitful fields of inquiry for the elucidation of the fundamental problems of biology. Several marine stations have now been erected on our coasts, in which a naturalist may gain a practical knowledge of the rich fauna and flora of the sea, and where he may apply those modern and often expensive methods of experiment and research which can only be carried out in a well equipped laboratory.

Among the most successful of these institutions is that of the Liverpool Marine Biology Committee, established first on Puffin Island in 1887, and subsequently moved to its present quarters at Port Erin. It is chiefly due, we believe, to the efforts and enthusiasm of Prof. W. H. Herdman that this laboratory was founded. To help the student to make good use of its resources, Prof. Herdman is now editing a series of small practical monographs known as the L.M.B.C. *Memoirs*. Much valuable time may be wasted, many serious errors may be committed, and many precious opportunities may be lost in the practical study of marine biology through the want of proper guidance, or through the ignorance of the literature of the subject. Well stocked libraries are rarely to be found near at hand, and, moreover, it often happens that the commonest animals and plants are just those which have been least completely described in readily accessible works. It is with a view to remedy these defects that the memoirs are being published. As the editor tells us in his preface, the series deals with those types which have hitherto not been adequately described in English text-books and laboratory manuals.

Some thirty volumes are promised. They range over almost the whole of marine life—from the diatom to the sea-weed, from the sponge to the porpoise. Twelve volumes have already appeared. These are:—(1) *Ascidia*, by the editor; (2) *Cardium*, by J. Johnstone; (3) *Echinus*, by H. C. Chadwick; (4) *Codium*, by R. J. H. Gibson and Helen Auld; (5) *Alcyonium*, by S. J. Hickson; (6) *Lepeophtheirus* and *Lernæa*, by Andrew Scott; (7) *Lineus*, by R. C. Punnett; (8) *Pleuronectes*, by F. C. Cole and J. Johnstone; (9) *Chondrus*, by O. V. Darbishire; (10) *Patella*, by J. R. A. Davis and H. J. Fleure; (11) *Arenicola*, by J. H. Ashworth; (12) *Gammarus*, by M. Cussans. Not only is a detailed and accurate account given of the structure of each type, but its habits, life-history, and embryology are also dealt with, and its "economic" aspects are not forgotten.

On the whole, the various monographs seem to us most trustworthy, and reflect great credit on the work of the authors, who, indeed, are for the most part specialists thoroughly familiar with the types they describe. Yet it must be confessed that the volumes differ considerably in merit and attractiveness. Some of them contain little that is either new or original. Among the most interesting of those already published we may mention the excellent volume on the plaice, *Pleuronectes*, by Messrs. Cole and Johnstone, which has already been reviewed in *Nature*, also the memoir on *Arenicola* by Mr. Ashworth. Both these seem to us models of what such monographs should be—clear and practical descriptions of the anatomy and life-history of the animals concerned, with some discussion of the general problems suggested, and good illustrations. Naturally enough the embryology is in most cases very briefly described, and often the accounts provided are chiefly derived from the works of other authors. We question, indeed, whether it is really worth while reproducing in such monographs figures illustrating the development which can be found in almost any text-book.

While both a table of contents at the beginning, and an index at the end, may not always be necessary, yet it is a pity that many of the monographs should be published with neither. In some cases, also, the figures are scarcely clear enough; but considering the very moderate price at which they are issued, the L.M.B.C. *Memoirs* are excellently printed and illustrated. They will doubtless fully justify the hope of the editor, and will prove most useful to students of marine biology, who will await with eagerness the appearance of the remaining volumes.